

Hubin and SWOSU Students Publish Research

11.01.2006

Southwestern Oklahoma State University faculty member Tim Hubin recently received notification that two of his research papers have been accepted for publication.

Hubin, an assistant professor in the SWOSU Chemistry and Physics Department in Weatherford, will have papers in the *Journal of Medicinal Chemistry*, a top international journal in the field published by the American Chemical Society, and in *Acta Crystallographica Section C, Crystal Structure Communications*, an international journal of crystallography published by the International Union of Crystallography.

The article in the JMC is titled "Configurationally Restricted Bismacrocylic CXCR4 Receptor Antagonists." The work, funded by The Research Corporation and Oklahoma INBRE, describes the synthesis, characterization and anti-viral activity of a potential new type of anti-HIV drug, called a fusion inhibitor. These drugs function by preventing the HIV virus from binding to their target receptor on the surface of human cells, thus preventing infection. This same receptor, called CXCR4, has been implicated in cancer metastasis, another potential target of this research.

Hubin collaborates with researchers in England and the Netherlands on this project.

Recent SWOSU chemistry graduate Danny Maples and current chemistry senior Randall Maples of Tahlequah have contributed to furthering this project over the past year, with their contributions likely to be published in a separate paper within the year.

The second article is titled "Dichloro(4,10-dimethyl-1,4,7,10-tetraazabicyclo[5.5.2]tetradecane)iron(III) hexafluorophosphate." The title compound was synthesized and crystallized as part of a laboratory course for upper level chemistry students at SWOSU. Hubin said the motivation for the lab was to develop an integrated, research-like atmosphere for the students, rather than use isolated experiments that do not depend on one another. The students proceeded through a multi-step organic synthesis that culminated with the synthesis of a unique transition metal complex for each student, followed by its complete characterization.

One of the characterization techniques was to attempt to grow crystals of the complexes. The title compound crystallized and its structure was determined, leading to the publication. All six students in the laboratory course have been credited as co-authors, because each contributed to the production of this novel compound. The students include Danny Maples; recent SWOSU biology graduate Andrew Nelson; and current chemistry majors Mike McClain of Centralia (IL), Dallas Matz of Weatherford, Randall Maples of Tahlequah and Sebastian Harris of Burns Flat-Dill City.

Hubin plans to continue to offer this type of experience to chemistry students in the future.